

ERM FRAMEWORK FOR DECISION MAKING

Authored by:

Sim Segal, FSA, CERA
President, SimErgy Consulting

Chrysler Building
405 Lexington Ave., 26th Flr
New York, NY 10174

Phone: (646) 862-6134

Email: sim@simergy.com



© 2012 Society of Actuaries, All Rights Reserved

The opinions expressed and conclusions reached by the authors are their own and do not represent any official position or opinion of the sponsoring organizations or their members. The sponsoring organizations make no representation or warranty to the accuracy of the information.

Adapted with permission. Corporate Value of Enterprise Risk Management: The Next Step in Business Management, Sim Segal, © Copyright 2011 by Sim Segal, John Wiley & Sons, Inc.

ERM FRAMEWORK FOR DECISION MAKING

Many insurance companies struggle to integrate ERM into decision making. As a result, they lack a robust and consistent approach for assessing the risk-reward tradeoffs of decisions, whether it is mitigation-related decisions or general business decisions. One symptom of this is the inability to make the business case for a given level of risk mitigation; for example, they simply set a risk exposure limit arbitrarily, without demonstrating the value of that level of mitigation. Another symptom is the presence of two separate approaches for decision making – one for general business decisions and a different one for mitigation decisions; yet, every business decision should add value, regardless of the type of decision it is. This difficulty is usually a result of a suboptimal approach to ERM.

In this document, we provide a high-level summary of an ERM approach that fully integrates ERM into all decision making processes. This approach is the value-based ERM approach presented in Sim Segal's book *Corporate Value of Enterprise Risk Management*. The value-based ERM approach is a robust yet practical synthesis of enterprise risk management and value-based management, and has been used to help a range of companies – financial services companies, non-financial services companies, and non-corporate entities alike – successfully implement their ERM programs and integrate ERM into their decision-making processes. The brief summary provided here does not permit a robust treatment of the subject where the full complement of question can be raised and answered, and is only intended as an outline of concepts.

Does the ERM Program Support Decision Making?

There are three main questions that can be asked about any ERM program to determine whether or not it is capable of supporting decision making:

1. Do the metrics support decision making?
2. Do the models support decision making?
3. Does ERM have buy-in from business units?

Most insurance company ERM metrics do not fully support decision making. Most insurance company ERM programs directly quantify the impact of financial and insurance risks but not of strategic and operational risks. This prevents the ERM program from informing strategic decisions and operational decisions, which are the bulk of decisions facing management. Those insurance companies that do attempt to directly quantify strategic and operational risks often use short-term metrics such as the impact on one-year's earnings, the balance sheet, or required capital. Unfortunately, these metrics cannot fully capture the impact of strategic and operational risks, which typically impact future revenues and future expenses over multi-year periods. Further, these metrics typically only capture the risk side of the risk-return equation, which only provides half the picture needed for decision making.

Typically, insurance company ERM models are leveraged from pre-existing capital management models, such as economic capital models. These models are not appropriate for supporting decision making. They can't match the pace required to keep up with the business. They require unusually long run times to complete a calculation and long lead times to modify the model; often, the business has moved on before these models can supply answers. In addition, the esoteric nature of the model logic is often only understood by a few technically-oriented individuals; this lack of transparency makes business leaders uncomfortable relying upon these models for decisions impacting their business.

The most common obstacle that chief risk officers face is the lack of buy-in for their ERM program. Many ERM programs fail to build buy-in because they have limited involvement with, and input from, the business units. The risk list, the risk scenarios, the ERM model, etc., are often produced solely within the corporate risk unit and then imposed upon the business units. Another reason is that most ERM programs do not support business unit initiatives but rather are seen as putting up obstacles by pointing out all the downsides to a given project.

The value-based ERM approach resolves these three challenges. First, we will give a brief overview of the approach and its key features. Then, we will return to explain how the value-based ERM approach overcomes these three challenges, facilitating the integration of ERM into decision making. Again, we present here only the most basic elements of this approach.

Risk Identification

The qualitative risk assessment typically involves direct, live interviews, with a broad group of individuals in the organization. Risks are identified, collectively scored on likelihood and severity, and an overall scoring methodology is chosen to rank the risks. This risk ranking is used to select the key risks, which advance to the risk quantification stage.

Some key features:

- Interviews are used rather than automated surveys, which builds buy-in for the ERM program, because it is collaborative, it spreads ERM awareness, and it allows for input from a broad group
- Severity metric is defined as the impact on company value, which connects risk to value, fully captures the risk impacts, and allows direct comparison across all sources and types of risks; risk is defined here as a deviation from “expected,” where expected is the baseline strategic plan

Risk Quantification

A range of individual deterministic risk scenarios are developed for each key risk, using the Failure Modes and Effects Analysis (FMEA) technique. The FMEA technique involves interviewing internal subject matter expert(s) for each key risk. Each risk scenario explores the risk event, by its originating source, and all of its downstream realistic consequences, including the financial impacts to future distributable cash flow components, including those related to revenues, expenses, and cost of capital.

An ERM model is built to calculate the baseline company value for the enterprise (whether or not it is a public company), which is an internal valuation based on discounted distributable cash flows consistent with the strategic plan projection. The baseline company value is what the enterprise would be worth if it was to perfectly execute its strategic plan and everything was to unfold precisely as expected. The model is built dynamically to calculate the shock impact of individual risk scenarios as well as of combinations of simultaneous risk scenarios, which facilitates the calculation of enterprise risk exposure – the overall volatility, from all sources of risk, of key metrics. The key metrics include company value and other important metrics, such as revenue growth, earnings growth, and required capital.

Some key features:

- Producing a baseline company value calculation using a practical, nimble, dynamic model, enhances the strategic planning process itself

- All types of risk are quantified with this approach: strategic, operational, financial, and insurance; this is critical to capturing all volatility and also to informing all types of decisions
- Risk scenarios are quantified in terms of their impact on company value, which is the lynchpin to connecting ERM to decision making, because value is the language of business decision makers
- The impact of each risk scenario is accompanied by an attribution by component driver (i.e., what portion of the impact is due to which aspects of the risk scenario) which focuses mitigation opportunities
- Both upside and downside risk scenarios are developed in the FMEA process, allowing the direct quantification of offsetting events (i.e., diversification benefits), multiple simultaneous events (which research shows are routinely the ones that can devastate an organization), and the proper weighing of both risk and return information in decision making
- The ranking produced by quantifying all the individual key risk scenarios produces a risk ranking that replaces the ranking obtained from the qualitative risk assessment, for the key risks, because it is:
 - More robust: A full range of risk scenarios are ranked rather than just a “risk”
 - More accurate: Specific subject matter experts are used rather than a broad group
 - More specific: Quantitative (point estimates) information is produced rather than qualitative (scores referencing broad ranges of impacts)
- The quantitative ranking of individual risk scenarios leads to rapid action, i.e., decision making. When management sees how much certain risk scenarios impact value – the unifying metric that is the language and basis for decision making – they tend to act.
- The calculation of enterprise risk exposure is a distribution of results, for company value and other key metrics. A useful expression of this overall volatility is the “pain points,” which indicate the likelihood of crossing certain thresholds that management does not want to cross. Rather than picking up just the tail risk, this involves a range of risk information selected at multiple points along the enterprise risk exposure distribution. Some pain point examples are:
 - “We have a 15% chance of losing 20% or more of our value”
 - “We have a 5% chance of a two-level ratings downgrade”
 - “We have a 25% chance of achieving less than half of our revenue growth goal”
 - “We have a 35% chance of achieving or exceeding Plan”
 - “We have a 1% chance of our capital ratio falling below X%”
- The FMEA interviews build buy-in for the ERM program, because it is collaborative, spreads ERM awareness, and it allows for input from the business units; in addition, it affords an opportunity to express how the value-based ERM approach can directly support business unit initiatives by helping to make the business case for projects and ventures, since it is written in the language of business decision makers: value (further explained in Risk Decision Making).
- The risk scenarios are deterministic. This produces tangible scenarios whose transparency resonates with management. In addition, deterministic scenarios are more thoughtfully developed; they benefit from conscious engagement of the subject matter expert, who can form their scenario from a holistic view that considers industry experience, company experience,

awareness of evolving circumstances, as well as information from stochastic modeling. Finally, deterministic scenario development engages more experts in the process, enhancing the information, spreading the risk culture, and building buy-in for the ERM program.

Risk Decision Making

The ERM committee reviews the exposure information produced in the risk quantification ERM process step, including individual risk scenario impacts (along with attributions by component drivers) and the enterprise risk exposure calculation as expressed by its multiple pain points. The first decision in ERM is the definition of risk appetite. Risk appetite is defined as management's answer to the question, "What do we want these exposures to be, at the limit?"

Once risk appetite is defined, clearly and quantitatively, a downward-cascading allocation or budgeting approach is used to define risk limits, which are a kind of "inside limit," such as risk attributable to (a) a risk source; (b) a business unit; or (c) a geographic region.

All decisions – whether *risk-priority* decisions (those originating from a desire to change the level of risk exposures) or *return-priority* (those originating from a desire to execute the strategic plan, i.e., routine business decision making) are all made using the same process⁶:

1. Quantify the impact on risk
2. Quantify the impact on return

The impact on risk is determined primarily by:

- (a) Relationship of risk exposures to their limits
- (b) Changes to the individual key risk scenarios
- (c) Resultant changes to enterprise risk exposure
- (d) Implications for changes in the discount rate used in the company value calculation; for example, if enterprise risk exposure (overall firm volatility) increases, then the discount rate (return required by investors) should increase commensurately

The impact on return is determined primarily by the change in baseline company value, which has two components:

- (a) Change in baseline distributable cash flow projection
- (b) Change in discount rate for company value calculation

Some features of this approach:

- Both the risk and return sides of the equation are provided, which fully supports decision making
- Both risk-priority and return-priority decisions have the same evaluation criteria. All decisions must add value to be acceptable.

Risk Messaging

Part of risk messaging is internal risk messaging. This is the signals that are sent to associates about the importance of ERM. Internal risk messaging consists of integrating ERM metrics into business performance analytics and, eventually, into incentive compensation.

Supporting Decision Making

We now return to the three criteria needed for an ERM program to support decision making and discuss how the value-based ERM approach achieves this.

The value-based ERM metrics fully support decision making. It quantifies all types of risk, including strategic, operational, financial, and insurance, which allows it to support all types of decisions. It also fully captures the impact of these risks, because it uses the company value metric, which includes all future impacts, whether to the income statement, balance sheet, or cost of capital. Finally, it provides the impacts of any decision on both sides of the risk-return equation.

The value-based ERM model is designed specifically for ERM and is appropriate for decision support. The model is practical and nimble, quick to calculate and easy to modify. In addition, it is based upon fundamental building blocks to which everyone can relate, providing the transparency needed for management to rely upon it for business decision support.

The value-based ERM approach builds buy-in at multiple points along the process. It is inclusive, incorporating an appropriate balance of input from corporate (needed for consistency) and the business units (needed for credibility). In addition, rather than present only the downside risks, the value-based ERM approach can help support business unit initiatives by evaluating the risk and return implications of a proposal.